

# VPC400 Communication Gateway

(with NXP i.MX8M-mini ARM application processor)

**\* Pre-production**



- 64-bit ARM CPU (Cortex-A53@1.6Ghz)
- Support Dual LTE Modules
- Power Saving Mode
- Remote Wake-up
- Over Voltage Protection
- GPIO (isolated) / GNSS receiver
- Gyro sensor / Accelerometer
- Android / Linux (Yocto)
- Compact Size



## Typical Applications

- Vehicle Gateway
- Fleet Management
- IOT Gateway

## Overview

VPC400 is a communication gateway designed for in-vehicle applications or IOT (Internet of Things) applications. VPC400 offers some unique features, including a 64-bit ARM processor, 2x LTE modem slots, voltage protection, software controlled on/off and remote wakeup.

With the latest Linux kernel, Android and tools, VPC400 allows users to quickly design and deploy custom software for various applications, such as vehicle tracking, fleet management and IOT communication gateway.

## Key Features and Specifications



### ● 64-bit ARM quad-core Cortex-A53 Application Processor

VPC400 incorporates the latest NXP iMX8M-mini processor, a 64-bit quad-core ARM Cortex-A53. A 64-bit processor is more capable than a traditional 32-bit one and is with long term Android/Linux support.



### ● Android / Yocto for application development and deployment

VPC400 offers Yocto, Android OS, tool chains, device drivers and sample application software. These resources enable users to quickly develop and deploy software on the VPC products.



### ● Wide DC input range /Over-voltage protection /Reverse-voltage protection

VPC400 operates over a wide input-voltage range of 9V~36V. In addition, the DC input is with over-voltage, over-current and reverse-voltage protection.



### ● 2x LTE modem slots / 2x SIM card slots

VPC400 supports 2x modem slots (mPCIe form factor) for 2x LTE modules to operate simultaneously in Yocto.



### ● Software controlled power on-off / power-on by a digital input signal

VPC400 power on/off can be controlled by software. This is for software to ensure data is completely saved before system shutdown. An external digital input signal can be used to turn on VPC400 power.



### ● 2x LAN Interfaces (LAN2 optional)

VPC400 is built with 1x GbE interface by default. An optional GbE LAN2 can be added. Two LANs are independent ports and provide more communication bandwidth.



### ● Isolated GPIO / CAN-FD / RS232

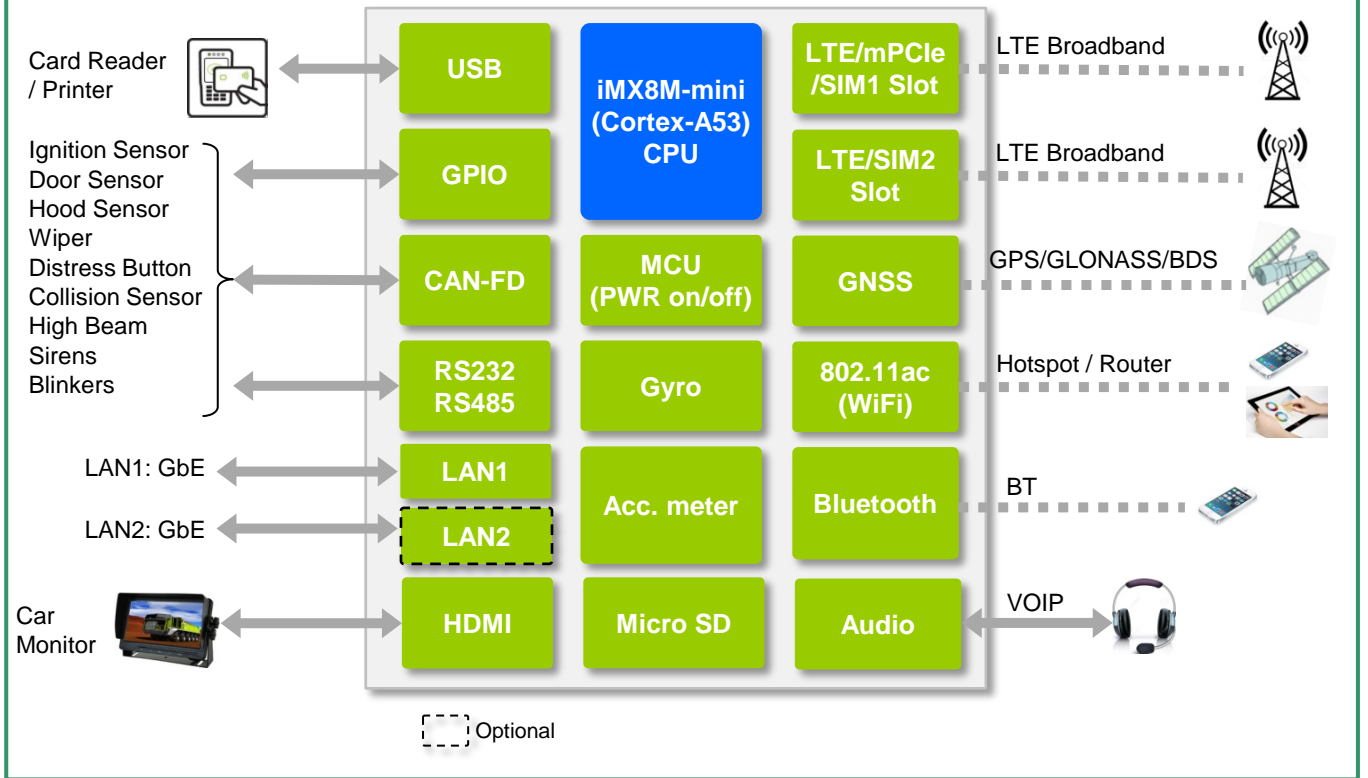
Interface isolation prevents high voltage damage from external devices. VPC400 GPIOs are photo-coupled input and output. CAN-FD and RS232 are also with isolation.

**VPC400 is not a product for end customers. It is an open platform and intended for software developers or system integrators to develop and deploy software for their end applications.**

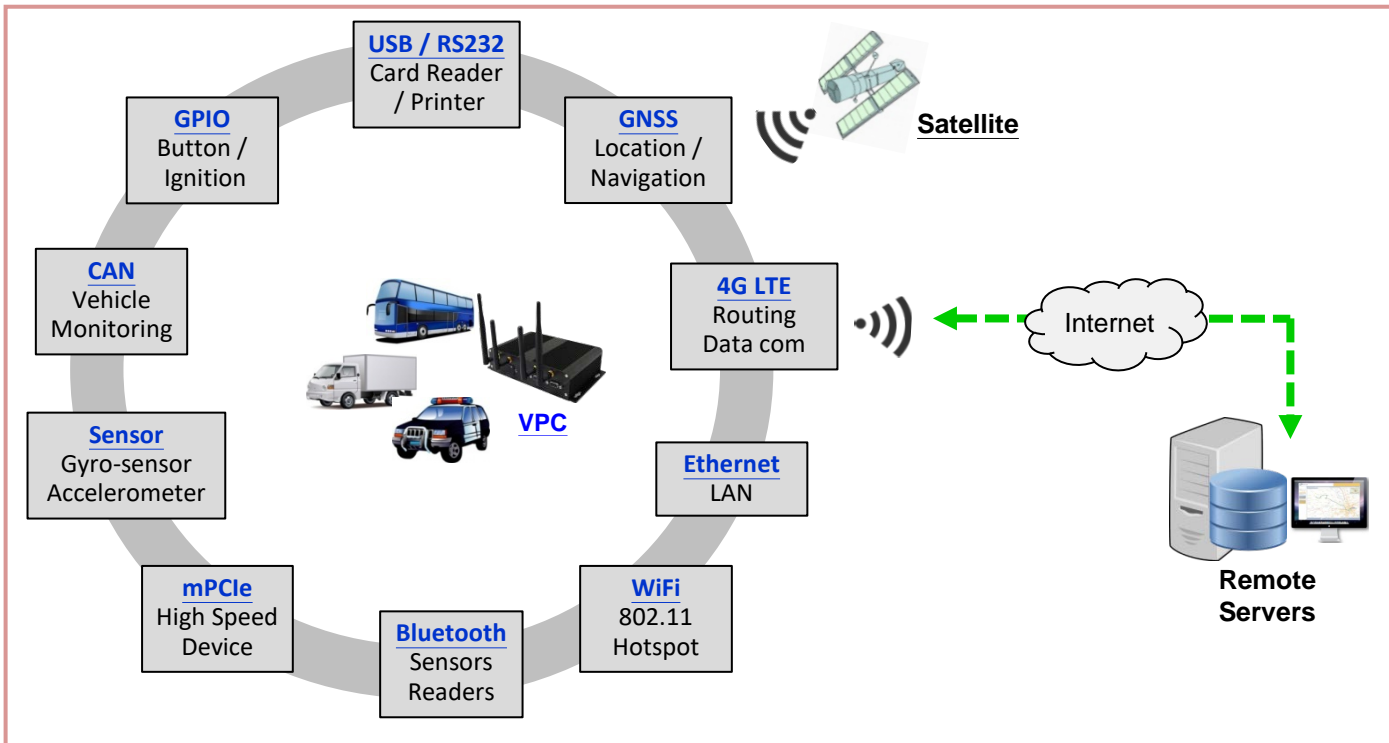
# VPC400

## Communications Gateway (Internet of Things, In-vehicle Computer)

### VPC400 Block Diagram



### Application: In-Vehicle Computer



# VPC400



## VPC400 Hardware Specifications

CPU	NXP iMX8M-mini / Quad-core ARM Cortex™-A53 @ 1.6GHz
Memory	2GB LPDDR4 / 8GB eMMC
OS	Linux 4.x (Yocto) / Android 9.0 (and newer)
Dual LTE Slots	<b>Optional (LTE modem)</b> 2x SIM card slot / Antenna: external 2x LTE slots (mPCIe form factor)
GNSS	GPS / GLONASS
Sensors	3-axis Gyro sensor + 3-axis Accelerometer
Inputs / Outputs	(isolated) 2x CAN-FD (isolated) 2x RS232 (or RS485) 2x Photo-coupled open-collector output 9x Photo-coupled digital input (5 – 24V)
USB port	2 x Host (HS) / 1x OTG (HS)
WiFi / BT	<b>(optional)</b> 802.11 b/g/n/ac WiFi and Bluetooth 4.2/BLE
Ethernet	1x <b>(default)</b> GbE / 1x <b>(optional)</b> GbE
Display	1x HDMI
Audio	Head-phone output + MIC input
Software on/off	Power on/off by software
Power Input	DC 9 - 36V with Over-Voltage Protection; Reverse Voltage Protection
Dimension Weight	100mm x 204mm x 48mm (L/W/H) <TBD>
Temperature	Operating : -20°C-70°C / Storage : <TBD>

## VPC400 Software Specifications

### OS

- VPC400: Linux 4.x (Yocto) and Android 9.0

### Device Drivers

- LPDDR4, Flash, USB, MicroSD, RS232, RS485, GNSS, LTE, Gyro-sensor, Accelerometer, CAN, GPIO, LAN, WiFi, Bluetooth, Audio

### Management

- Local and remote advanced configuration through http-based Device Manger program
- Report: CPU usage, frequency , temperature, DRAM size
- Support HTTP protocol
- Command Line Interface via TTY/SSH
- System power control , support suspend mode operation

### Routing Features

- IPv4
- DNS Server
- NAT
- Port forwarding Ethernet & WIFI both
- Routing function

### CAN Bus

- Device driver to transmit/receive data packet for various protocol (e.g. J1939,etc)

### GNSS

- Support NMEA0183 protocol
- Time sync with GNSS satellite

### LTE Network

- Support LTE network and routing
- LTE signal strength monitor

### GPIO control

- Set/Read GPIO by local and remote http-based Device Manager

### MQTT

- Demo program for MQTT function

### Sensor

- Demo program for Gyro sensor
- Demo program for Accelerometer






## VPC400 Ordering Information

Part No.		OS	LPDDR4	Common Specifications	
VPC400-A		Android	2GB	iMX8M-mini Quad-Core 8GB eMMC / WiFi-BT 10/100/1000 Ethernet x1 USB 2.0 Host / USB 2.0 OTG Micro SD card / GNSS receiver	LTE socket x2 / SIM holder x2 Gyro-sensor / Accelerometer <b>(Isolated I/O)</b> RS232 / CAN-FD / GPIO HDMI
VPC400-A-4G			4GB		
VPC400-Y		Yocto	2GB		
VPC400-Y-4G			4GB		

## VPC400 LTE module order option

P/N	Band	Suggested Area
S76AH	B2/ B4/ B12	North America/ AT&T
S76EH	B1/ B3/ B5/ B7/ B8/ B20/ B38/ B40/ B41	Africa, China, Europe, Korea, Middle East, Taiwan
S76JCH	B1/ B3/ B8/ B18/ B19/ B26	Japan
S76SAH	B1/ B3/ B4/ B5/ B7/ B8/ B28/ B40	Australia, New Zealand, South America
S76VH	B2/ B4/ B5/ B13	North America/ Verizon

## VPC400 Accessories order option

Part No.	Description	Photo
PWR-006-VPC	Power Adapter (+12V @ 2.5A or 3A)	
ANT-01	GNSS antenna	
ANT-02	WiFi Antenna (8cm/2dBi, SMA plug reverse)	
ANT-03	3G/LTE antenna	
CAB-10	HDMI cable type A plug (F-F) with screws , 1-meter	
0156-1818L	VPC400 GPIO/COM/CAN Mating Connector	

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